Title Liquid Layer Lab

Name, Date, Lab partner

Introduction:

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Methods and Materials

Materials:

1 x 25mL graduated

4 x 10mL graduated

Substances: Glycerol 5mL

" Corn Oil 5mL

Methods:

1. Measured 5mL of glycerol, corn oil,
2.
3.

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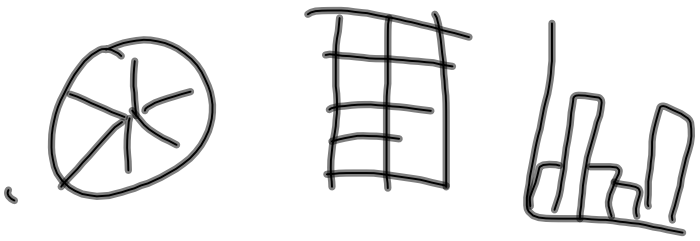
## Results:



## Conclusion:

Write out your final concept of how, why lab results occurred

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## Summary:

1-2 sentences summarizing the lab

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# 2.1 Units + Measurements

Review vocab: mass - the amount of matter and how much space it takes up

Main idea: chemists use internationally recognized systems of units to communicate their findings

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## I. Units

A. International System of Units (SI units)

1. System was developed so units of measurement could be communicated on a universal scale

## II Base Units and SI prefixes

A. seven base units in SI

B. A Base unit is defined as a unit in a system of measurement that is based on an object or event in the physical world

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Table 1

| Quantity | Base Unit |
|---|---|
| Time | seconds |
| Length | meter (m) |
| Mass | kilo (kg) |
| Temperature | Kelvin (K) |
| Amount of Substance | mole (mol) |
| Electrical current | Ampere (A) |
| luminocity | candela (cd) |

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| Prefix | Symbol | Numerical Value | $10^x$ |
|---|---|---|---|
| Giga | G | 1,000,000,000 | $10^9$ |
| mega | M | 1,000,000 | $10^6$ |
| Kilo | K | 1,000 | $10^3$ |
| — | - | 1 | $10^0$ |
| deci | d | 0.1 | $10^{-1}$ |
| centi | cm | 0.01 | $10^{-2}$ |
| Milli: | m | 0.001 | $10^{-3}$ |
| Micro | μ μ | 0.000001 | $10^{-6}$ |
| nano | n | 0.000000001 | $10^{-9}$ |
| Pico | P | 0.000000000001 | $10^{-12}$ |

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E. Fahrenheit vs. Celsius

1. °F = 1.8(°C) + 32

a. 35°F → C°

$$\frac{35°F - 32}{1.8} = 1.7°C$$

F. Kelvin to Celsius Conversion

1. K = °C + 273

## III Derived units

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A. A unit is defined by a combination of base units, this is called a derived unit

1. volume ($cm^3$) → density ($g/cm^3$)

B. Volume - the space occupied by an object

1. volume (for a rectangle/cube) is generally length x height x width = $m^3$

2. Figure 6 in Book

a. 1 mL = 1 $cm^3$

b. 1 L = 1000 mL

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C. Density - a physical property of matter and as the amount of mass per unit volume

1. common units of density are grams per cubic centimeter ($g/cm^3$) for solids and grams per milliliter (g/mL) for liquids + gases

2. The density of a substance cannot be measured directly

a. Density is calculated using mass + volume measurements

* 3. Density equation: $\frac{mass}{volume}$

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a. example: volume = 5.0 $cm^3$
mass = 13.5 g

Density = $\frac{13.5 g}{5.0 cm^3} = 2.7 g/cm^3$

2. Earth Science example: Weather is created by moving air masses of different densities

* possible essay

End of 2.1, Review problems: Sec 2.1
14-18, 20

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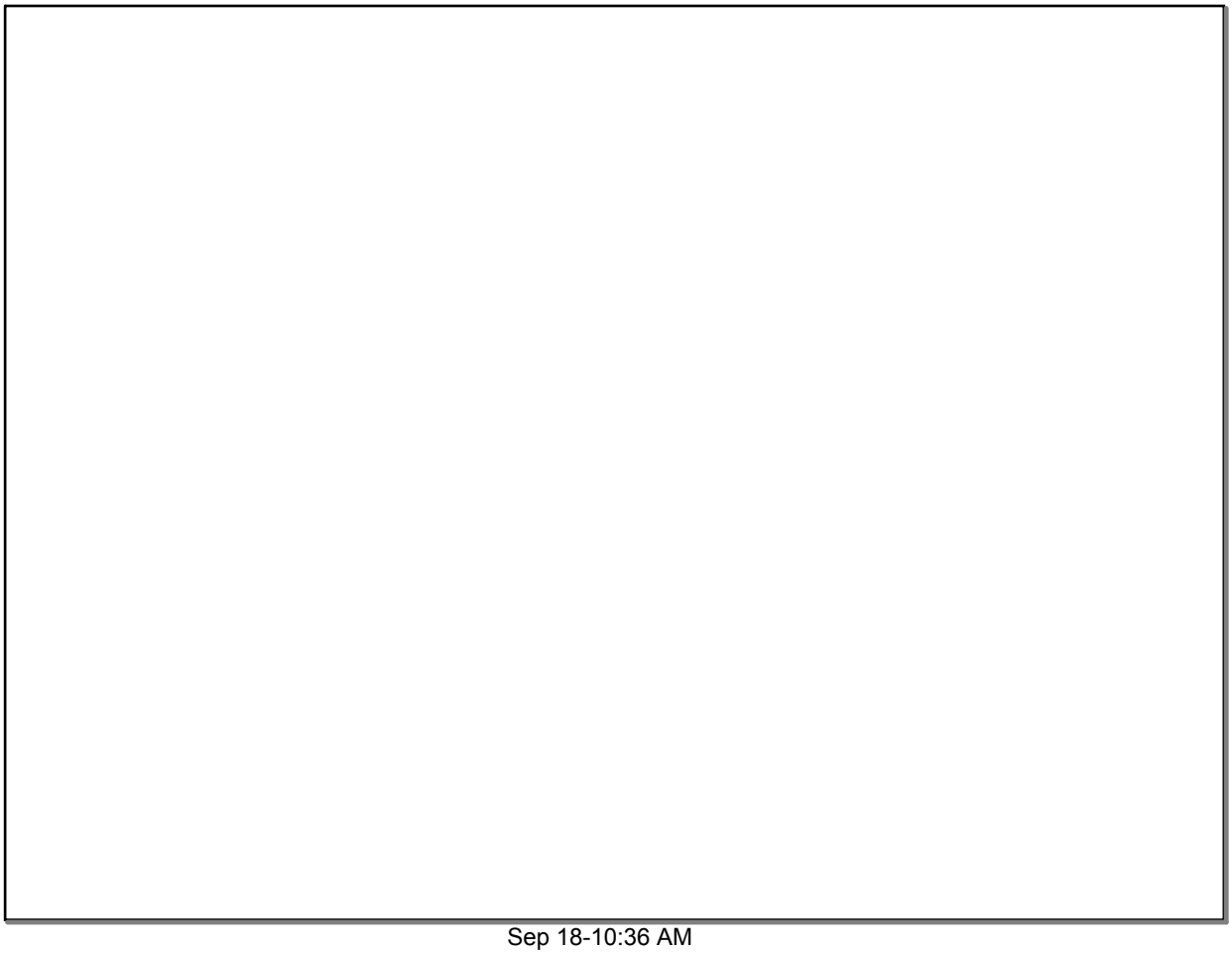

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